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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,162	09/09/2003	John C. Legge	502380	5695

23626 7590 02/23/2005  
LEYDIG VOIT & MAYER, LTD  
6815 WEAVER ROAD  
SUITE 300  
ROCKFORD, IL 61114-8018

EXAMINER

ELVE, MARIA ALEXANDRA

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/658,162

Applicant(s)

LEGGE ET AL.

Examiner

M. Alexandra Elve

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 January 2005.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-39 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 38 is/are allowed.  
6) ☒ Claim(s) 1-37 and 39 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 19 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/29/03.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9, 14-16, 19-24, 29-30, 33-37 & 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huissoon (USPN 6,044,308) in view of Kilian et al. (USPN 5,304,773).

Huissoon discloses calibration of tool centers using a fixture with a reference point and light seam tracking sensor this provides position and orientation, that is, two-dimensional data. A reference end point is used and three axes of movement are featured. Figures 6 and 9 demonstrate the multiple degrees of axial freedom (R, S, F, E, G, K). The machine tool may be used for laser welding. Sensors may be presented below a viewing window. Three images of the laser spot are taken and analyzed which determines the tool center point with respect to the sensor. Resulting in a calibrated center point for the machine tool. (abstract, figures, col. 1, lines 35-67, col. 2, lines 1-7, 60-67, col. 3, lines 55-67, col. 4, lines 1-12, 24-67, col. 5, lines 59-67, col. 6, lines 4-67, col. 7, lines 1-67, col. 8, lines 29-35, col. 11, lines 55-67, col. 12, lines 1-7, col. 14, lines 20-67, col. 15, lines 1-10).

Huissoon does not teach a work zone smaller than workpiece or the removal of debris from the work zone.

Kilian et al. teaches a laser workstation with optical sensors. The laser workstation has a base member, and a laser head with an optical sensor assembly. The laser head system moves relative to the base workpiece area. The computer control indexes the sensor assembly to a preselected position relative to the approximate position of the reference formation on the workpiece and moves it in a predetermined path from the preselected position to sense passage of the beam over the edge of the formation. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a large piece system such as Kilian et al. with the Huissoon system because of the increased variety of workpieces, which could be processed.

Huissoon does not disclose the removal of debris from the workpiece. It is well known in industry that debris is removed from workpieces during operation in order to ensure a quality and non-contaminated product. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to clean the workpiece during operations.

Claims 10 & 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huissoon and Kilian et al., as stated above and further in view of Legge (USPN 6,204,473).

Huissoon and Kilian et al. do not teach the use of servos in the laser machining system.

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Legge discloses the use of a servo axis to move and position a laser nozzle. Additionally, other drives may be used, such as pneumatic or hydraulic controls, linear and stepper motors and so forth.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use servo controlled axes, as taught by Legge in the Huissoon and Kilian et al. system because this is merely one of many ways used to move the laser head and associated systems.

Claims 11-13, 17-18, 26-28 & 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huissoon and Kilian et al., as stated above and further in view of Kwon et al. (USPN 5,751,436).

Huissoon and Kilian et al. do not teach etched or affixed marks.

Kwon et al. discloses a system for cylindrical and polar coordinate movement of material or a laser beam such that an image may be engrave on a workpiece. For an automatic start position a video camera measures and positions the workpiece. Once initial engraving has started, alignment is defined.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use an engraved alignment mark, as taught by Kwon et al. in the Huissoon and Kilian et al. system because this is merely a variation of alignment determination. Additionally, an affixed mark is merely a variation of an etched mark and hence is encompassed by the prior art.

***Allowable Subject Matter***

Claim 38 is allowed.

The following is a statement of reasons for the indication of allowable subject matter: the claim as supported by the specification differs from the prior art in that it does not teach a computer controlled laser machine tool in which the laser sensor specifically checks registration without requiring holes to be cut into the workpiece.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See US PTO-892.

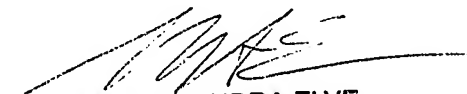
Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Alexandra Elve whose telephone number is 571-272-1173. The examiner can normally be reached on 6:30-3:00 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on 571-272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

February 18, 2005.



M. ALEXANDRA ELVE  
PRIMARY EXAMINER